S/058/62/000/008/128/134
A160/A101

An investigation of the...

converters. A description is given of the designs, the diagrams of connecting the loads and of the commutation of one-sided and double-sided photoconverters. During the testing of one-sided and double-sided photoconverters, it was determined that the efficiency of the two-sided photoconverters decreases with increasing specific resistance ρ of the initial Si from 5.2% to 2%. The efficiency of one-sided photoconverters did not depend on ρ and amounted to $\sim 6 - 8\%$. A decrease in the efficiency of the double-sided photoconverters is caused by a sharp increase of their resistance in series effected by an increase of its rear-wall component. The power taken per area unit of double-sided photoconverters from Si with $\rho \leq 0.1 - 0.2$ ohm·cm during the illumination of both sides was 1.2 - 1.3 times higher than in one-sided photoconverters. There are 2 references.

V. Shch.

[Abstracter's note: Complete translation]

Card 2/2

A1095

S/058/62/000/008/128/134
A160/A101

26272/

AUTHORS: Zaytseva, A. K., Fedoseyeva, O. P.

TITLE: An investigation of the possibility of using silicon photoconverters with a double-sided effective area

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 43, abstract 8-3-86b (In collection: "Teploenergetika", no. 3, Moscow, AN SSSR, 1961, 87 - 90)

TEXT: In silicon photoconverters, which are now being produced, only one effective side of the plate with a coated layer of p or n-type base silicon is used. The non-effective side of this plate has a solid metal slip-ring rear-wall contact. To obtain a greater power per weight unit of Si, an investigation was carried out of the possibility of using silicon photoconverters with a double-sided effective surface. In this case, after diffusing the impurity in the base Si, one of the sides of the plate is ground-off, i.e. not completely, but in the form of a narrow strip to which a rear-wall contact is applied. The remaining unground part of the plate is also an effective area of the photo-

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Investigation of the ...

grains recombined at the boundaries will be very small. In designing polycrystalline photo-electric converters the harmful effects of the high resistance of inter-crystal junctions are eliminated by an additional grid of current taps. In this case a polycrystalline photo-electric converter behaves as though it consisted of separate small monocrystal photocells connected in parallel. The main difference of polycrystalline converters from monocrystalline photocells are a lower opencircuit voltage and a lower short-circuit current density and therefore a lower efficiency. Load, light and spectral characteristics of polycrystalline photo-electric converters are given; their main parameters are summarized in a table. The maximum spectral sensitivity of polycrystalline photo-electric converters lies in the 7500 - 8000 Å region; the maximum output power with solar illumination is 5 - 6 mW/cm^2; the cost of polycrystalline photo-electric converters of 1 W power is 1/2 to 1/3 of that of monocrystalline ones. 9 references. [Abstracter's note: Complete translation.]

Card 2/2

11772

S/194/62/000/008/042/100
D295/D308

26.2420

AUTHORS: Gliberman, A.Ya., Zaytseva, A.K., and Landsman, A.P.

TITLE: Investigation of the possibility of using polycrystalline silicon for manufacturing photo-electric converters

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1962, abstract 8-3-85 t (In collection: Teploenergetika, no. 3, M., AN SSSR, 1961, 116-128)

TEXT: Polycrystalline Si can be characterized by the type of conductivity (whether p or n-type), the degree of 'polycrystallinity' (the magnitude of the individual monocrystalline grains), as well as by the method of growing the crystal ingot (by means of an oriented or non-oriented seed crystal). The value of the polycrystal resistivity ρ remained unvaried from grain to grain; jumps of resistivity at grain boundaries were observed in material of higher resistance ($\rho \sim 1\ \Omega$ x cm or larger) and were altogether absent in low-resistance material ($\rho \sim 0.1\ \Omega$ x cm). For grain dimensions much larger than the diffusion length of minority carriers, the fraction of

Distribution of impurities in ...

alloyed region has original features and does not obey Fick's law. The impurity diffusion front in Si is sharply defined, i.e. the impurity concentration varies relatively little over the whole alloyed layer and decreases sharply at a small distance from the p-n junction. The optimum alloying depth of the p-n junction, corresponding to a maximum output power of the photo-converter, is basically determined by the following quantities; the total value of surface and volume recombination of carriers, the resistance of the alloyed layer and the value of back-resistance. The ultimate value of the optimum depth of the p-n junction corresponds to that value for which the combined action of all the above factors passes through a minimum. 6 references. [Abstracter's note: Complete translation.]

Card 2/2

41776
S/194/62/000/008/046/100
D295/D308

24.7500

AUTHORS: Zaytseva, A.K., and Gliberman, A.Ya.

TITLE: Distribution of impurities in the alloyed layer of photo-electric converters

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1962, abstract 8-3-87 ya (In collection: Teploenergetika, no. 3, M., AN SSSR, 1961, 100 - 107)

TEXT: The authors describe a method of investigating the surface layer formed by diffusion of acceptor impurities in n-type Si or of donor impurities in p-type Si. An investigation of the main parameters of the initial material and of the electrical properties of the sample in the course of the doping process was carried out on samples of rectangular form. Voltage measurements of the Hall effect as a function of the depth of the doped layer, x, were carried out on a special apparatus. Investigations carried out on several samples in which a p-n junction was generated by diffusion of donor impurities in p-type Si and diffusion of acceptor impurities in n-type Si have shown that the distribution of impurity atoms in the

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commutation of one-sided and two-sided photo-converters are described. In tests of one-sided and two-sided converters it was determined that the efficiency of two-sided photo-converters decreases from 5.2 to 2 % as the resistivity ρ of the initial Si increases. The efficiency of one-sided photo-converters did not depend on ρ, and amounted to 6 - 8 %. The decrease of the efficiency of two-sided photo-converters occurs as a consequence of the sharp increase of their series resistance, caused by the increase of its back component. The power output from a unit area of two-sided photo-converters of Si with $\rho \leq 0.1 - 0.2\ \Omega \times$ cm and with both sides illuminated was 1.2 - 1.3 times higher than in one-sided photo-converters. 2 references. [Abstracter's note: Complete translation.]

Card 2/2

h1773
S/194/62/000/008/043/100
D295/D308

26.1512

AUTHORS: Zaytseva, A.K., and Fedoseyeva, O.P.

TITLE: Investigation of the possible use of silicon photo-converters with a bilateral working surface

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1962, abstract 8-3-86 b (In collection: Teploenergetika, no. 3, M., AN SSSR, 1961, 87 - 90)

TEXT: In silicon photo-converters manufactured today only one working side of the wafer is utilized, with a p or n-type silicon base layer applied to it. On the non-working side of this wafer there is a solid metallic current-pickup back contact. In order to obtain a large power from a unit weight of Si, the possibility was investigated of using silicon photo-converters with a bilateral working surface. In this case, after diffusion of the impurity in the Si base, one of the sides of the wafer is ground, not completely but only along a thin strip to which the back contact is applied. The remaining non-ground part of the wafer is also a working surface of the photo-converter. Design versions, load-connection circuits and the

Card 1/2

L 3032-66 EWT(1)/EWA(h) IJP(c) AT

ACCESSION NR: AP5017679 UR/0109/65/010/007/1356/1358
621.383.44:546.28

31
B

AUTHOR: Bordina, N. M.; Laytseva, A. K.

TITLE: Selection of optimal size and load of a silicon photocell with various arrangements of leads

SOURCE: Radiotekhnika i elektronika, v. 10, no. 7, 1965, 1356-1358

TOPIC TAGS: photocell, silicon photocell

ABSTRACT: The conclusions of A. U. Momin et. al., (J. Electronics and Control, 1963, 14, 4, 425) and M. Wolf (Proc. IRE, 1960, 48, 7, 1262) re silicon-photocell efficiency are critisized. A theoretical method is suggested for finding the optimal dimensions and the optimal load current of a silicon photocell having various configurations of contacts with the alloyed layer (single and double strips, angle, Π, square, circle, grid). Formulas connecting the geometrical dimensions of the photocell and its contact with its resistivity, thickness, and optimal current for all above contact configurations are developed. Orig. art. has: 2 figures and 17 formulas.

ASSOCIATION: none

SUBMITTED: 16Jun64 ENCL: 00 SUB CODE: EC

Card 1/1 NR REF SOV: 001 OTHER: 003

DOLGOV, V.M., inzh.; DALETSKIY, G.S., inzh.; ZAYTSEVA, A.K., inzh.

Use of photoelectric converters for measuring the surface of plane figures with random profiles. Elektrotekhnika 34 no.9: 66-68 S '63. (MIRA 16:11)

photocell having various takeoff contacts

SOURCE: Radiotekhnika i elektronika, v. 10, no. 4, 1965, 727-735

TOPIC TAGS: semiconductor, photocell, silicon photocell, spreading resistance

ABSTRACT: As in practical silicon photocells, the reduction of the output voltage (20—30 mv) due to the spreading resistance is small compared to the parameter AkT / q = 40 mv (where k is the Boltzmann constant, T is the temperature, q is the electron charge, and A is a numerical constant about 2), the photocell load characteristic is presented as a small-parameter series; the ratio of the voltage drop in the doped layer to AkT / q is used as the small parameter. Equations and

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ACCESSION NR: AP5010101

measured before and after the etching. From these measurements mobility and concentration of the boron atoms in silicon could be determined. The distribution of the boron atoms in the entire alloyed layer was determined by successive etchings and measurements. The electrical parameters of the silicon converter were studied as a function of the thickness of the alloyed layer. The results are illustrated in Fig. 4. The distance x from the surface of the specimen, measured into the interior of the specimen, was chosen as the common abscissa. As can be seen, no-load voltage $U_{x.x.}$ increases with an increase in x, also the short-circuit current $I_{k.z.}$ and the maximum power P_{max} increase until a certain depth is reached ($x_{opt} = x_{opt}$). On further approach to the p-n junction (which was at a depth of about 11μ) these quantities again decreased. The change of the resistance r of the alloyed layer is illustrated by the dashed line. At depths of the p-n junction greater than x_{opt} the resistance of the alloyed layer is relatively low and increases slowly with the approach to x. In the case shown in Fig. 4 $x_{opt} = 3\mu$. There are 4 figures and 5 references: 4 Soviet and 1 non-Soviet.

27291

S/181/61/003/008/021/034
B102/B202

26.2421 also 3010, 3110

AUTHORS: Zaytseva, A. K. and Gliberman, A. Ya.

TITLE: Study of the impurity distribution in the surface layer of n-type silicon photoelectric converters of solar energy

PERIODICAL: Fizika tverdogo tela, v. 3, no. 8, 1961, 2377-2382

TEXT: The authors describe a model of a silicon photoelectric converter with p-n junction. The junction was produced by thermal diffusion of boron into n-type silicon. Prior to diffusion, the resistivity ρ and the Hall voltage were measured and the concentration n of the majority carriers was calculated. After the diffusion one side of the specimen was completely ground off, at the lateral faces the alloyed layer was left only in the central part. The authors used lead-coated nickel contacts. The model is schematically shown in Figs. 1a and 1b. The measurements were made under a heating lamp of the type ЗС-3 (ZS-3) with filter correction of the spectrum according to a solar irradiation of an intensity of 78 mw/cm^2. To determine the electrical parameters in the surface layers, layers were etched off by means of KOH and the conductivity and the Hall voltage were

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point. The changes in no-load voltage, short circuit current series resistance and maximum power with temperature of polycrystal converters are very similar to those of single crystals but sometimes, at low temperatures, the series resistance is very high, though this does not always cause a great reduction in the output. The reasons for this are discussed. The maximum spectral sensitivity of polycrystal photo-converters lies in the wavelength range 7500 to 8500 Å. The maximum output per unit surface of a typical polycrystalline converter exposed to sunlight is at present 5 to 6 mW/cm^2. The cost of a 1 W battery made of polycrystalline silica is a half to a third of the cost of a single crystal battery. Despite the inferior power characteristics polycrystalline silicon photo cells may prove to be promising material for the mass production of photo-electric converters. There are 11 figures, 2 tables and 9 references: 8 Soviet-bloc and 1 non Soviet-bloc. The reference to an English language publication reads as follows: Ref.6: Prince M. J. Appl. Phys., 26 (5), 1955, 534.

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of recombination on the boundaries is slight. The bad effect of high resistance of the intercrystalline layers can be overcome by using a grid type terminal construction so that the converter consists of a number of small elements in parallel, but the need even for this construction can be avoided by the deposition of a film of good conductivity. The presence of impurities in the intercrystalline region has a damaging effect on the converter and high concentrations of impurities can shunt the p-n transition. This has been observed in samples made from polycrystal ingots of low resistance. In general, the operating characteristics of polycrystalline converters differ little from those of photo-cells made from single crystals, however, the no-load voltage and short-circuit current density are lower so that the efficiency is lower. Performance data are given for photo-cells made with both orientated and unorientated polycrystals and in general the polycrystalline cells may be classified into two types. In one type there is an inflection point in curves of the natural logarithm of current as function of voltage in the voltage range of 250 to 450 mV. In the second type there is no such inflection

An investigation of the possibility ...

silicon may be characterized by the type of conductivity (p or n), by the dimensions of the individual single crystals and by the method of production, depending on whether the crystal is grown with oriented seeding or not. If the seeding is oriented the needles are larger and longer and tend to lie along the ingot, whereas if the seeding is not oriented, crystal growth is random. Individual crystals are of fairly constant resistance but the resistance of the grain borders is high. There are indications that contact resistance between grains is ohmic but that resistance jumps can result from the presence of impurities at the surfaces. The resistance characteristics of the components of the polycrystal are however yet inadequately understood. The influence of harmful effects at the boundaries of large grains can largely be overcome by appropriate construction of the semiconductor device, most of the pairs generated need not overcome the boundary layer before separation. Apparently, the boundary layer affects only pairs formed near to it. If the grains are much bigger than the diffusion length of the current carriers and in particular if they are greater than the thickness of the layer, the probability

33950
S/665/61/000/003/014/018
E194/E420

26.15-12

AUTHORS: Gliberman, A.Ya., Zaytseva, A.K., Landsman, A.P.

TITLE: An investigation of the possibility of using polycrystalline silicon for making photo-electric converters

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Teploenergetika, no.3, 1961. Poluprovodnikovyye preobrazovateli solnechnoy energii. 116-128

TEXT: Hitherto, silicon photo cells have been made from single crystals but as these are expensive it would be advantageous to use polycrystalline silicon for this purpose. Published work on the subject is reviewed and seems to indicate that this is possible. The nature of polycrystalline silicon is discussed and also the nature of conduction, whether current flows through at the individual single crystals or round them through the impurities at their surfaces. The mobility of current carriers may be reduced by the intercrystalline layer and tests show that this mobility is indeed lower in polycrystals than in single crystals and this has limited the field of application of polycrystals. Polycrystalline

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separation factor then depends both on the diffusion length of carriers from the alloyed region and on that from carriers from the base material. The optimum transition depth depends on the ratio between these two diffusion lengths and on the concentration of electron-hole pairs on the two sides of the p-n transition. As etching proceeds the resistance of the upper alloyed layer increases but the resistance of the silicon base and of the photo-converter contact resistance remains unchanged and this probably increases the optimum depth. The optimum depth also probably depends on the base resistance of the photo-cell which increases greatly once the dimensions of the photo-cell exceed a certain value. There are 5 figures and 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc. The two references to English language publications read as follows: Ref.3: Backenstoss G. Bell System Tech., no.37, 1958, 699-710. Ref.4: Chapin D.M., Fuller C.S., Pearson G.L. Bell Laboratories Record, no.7, 1955, 242-246.

Card 4/5

Semiconductor solar energy ...

the electrical properties of the specimen and the depth of the p-n transition. The left hand scales are $I_{k.s.}$ mA - short circuit current - and P_{max}, mW - power; the right hand scales are U_{xx}, mV - no-load voltage - and r - ohms. It will be seen that as etching proceeds there is a steady increase in the no-load voltage, the short circuit current and the power; this continues until a certain optimum depth of layer is reached beyond which there is a rapid fall off in the properties. The optimum depth depends on the total surface and the recombination of s-type carriers and the series resistance of the photo-cells. To reduce recombination loss the p-n transition must be separated from the region where the pairs are formed by a distance not greater than the diffusion length of current carriers. The electron-hole pairs are formed by light at a depth of about 25 microns and therefore, in deep transitions all the pairs originate in the alloyed region. The separation factor then depends mainly on the diffusion length of the subsidiary current carriers of the alloyed zone. As the surface is etched the alloyed zone becomes thinner and there is an increase in the number of pairs originating in the basic silicon. The

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Semiconductor solar energy ...

alloyed layer which has conductivity of the opposite type. All the specimen except the upper active layer was varnished and the active layer was etched away by successive treatments with KOH solution; measurements of electrical properties were made between etchings. Photo-electric measurements were made using a calibrated lamp with filters. The mean concentration of impurity as a function of depth was assessed from the mean concentration of main current carriers. The conductivity of the remaining alloyed layer was measured by applying electrodes to the end edges of the samples and passing a current of 10 to 20 mA, measuring the voltage drop between probes. The Hall effect was measured. When the p-n transition was created by diffusion of phosphorus into p-type silicon or for boron on to n-type silicon the concentration of phosphorus or of boron altered relatively little (by about one order of magnitude) on moving from the surface to near the p-n transition and then fell suddenly by several orders near the p-n transition. This is attributed to differences in the coefficients of diffusion of impurities across the thickness of the alloyed layers. Fig.5 shows a graph of the relationship between

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33948
S/665/61/000/003/012/018
E194/E420

26.1512

AUTHORS: Zaytseva, A.K., Gliberman, A.Ya.

TITLE: Semiconductor solar energy converters

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Teploenergetika. no.3, 1961. Poluprovodnikovyye preobrazovateli solnechnoy energii. 100-107

TEXT: Semiconductor devices made by diffusion of donor or acceptor impurities and having a large p-n transition area are being widely used, for example as photo-electric generators. This article gives the experimental results of an investigation of such layers of acceptor impurity (boron) in n-type silicon and of donor impurity (phosphorus) in p-type silicon. The experimental method is also described. The specific resistance and Hall effect of the samples were measured before diffusion. After diffusion one side of the specimen was ground clean and an alloyed layer was left on the edges only near the centres. Nickel contacts were used. In making measurements, current was passed only through the surface layer since the p-n transition region is a plane which electrically insulates the base material from the

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carriers in the lower layer of the silicon base to the rear contact and because of the reduction in the cross-section available to current carriers. When the double sided elements were illuminated from one side they were not so good as the single sided elements. However, when they were illuminated from both sides the power per unit area of silicon plate was greater than that of the single sided elements by a factor of 1.2 to 1.3, provided that the specific resistance of the silicon was not greater than 0.1 to 0.2 ohms cm. Double sided elements of silicon with resistance of 0.5 to 1 ohm cm are always worse than the corresponding single sided elements. Consequently, double sided elements should only be made of low resistance silicon and of small dimensions. The increase in output is appreciable in large installations and it may be desirable to use double sided elements in particular cases; further study of the subject of rear reflectors is indicated. There are 1 figure, 1 table and 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc. The reference to an English language publication reads as follows:
Ref.1: Prince M. J. Appl. Phys. No.26 (5), 1955, 534.

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An investigation of the possibility ...

For the present work, photo-elements were made of silicon with various values of specific resistance ranging from 0.1 to 1 ohm/cm. The photo elements were illuminated on one side by a lamp and on the other side by light reflected from the lamp by a plane mirror. Data obtained on illuminating double sided elements from both sides were compared with the controlled results for single sided elements. As the specific resistance of the initial silicon was increased the efficiency of the double sided elements fell from 5.2 to 2% whereas the efficiency of the single sided cells was about 6 to 8%, irrespective of the resistivity of the silicon. The reduction in efficiency of the double sided element results from reduction in the short circuit current density and in the no-load voltage because of a considerable increase in the series resistance of the double sided element. This is about 1 ohm in the case of a single sided element whereas with the double sided elements it ranges from 4 ohms with the silicon of lowest resistance to 5 - 22 ohms for high resistance silicon. This series resistance is high in double sided cells because of the length of the path of curr

33946
S/665/61/000/003/010/018
E194/E420

26.1512

AUTHORS: Zaytseva, A.K., Fedoseyeva, O.P.

TITLE: An investigation of the possibility of using silicon photo-energy convertors with double sided working surfaces

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Teploenergetika, no.3, 1961. Poluprovodnikovyye preobrazovateli solnechnoy energii. 87-90

TEXT: The silicon used in photo-energy convertors is expensive so it is desirable to obtain the maximum power per unit weight of silicon. Within the limits this may be achieved by reducing the thickness but another approach is to use both sides of the material, one illuminated by direct sunlight and the other by reflection. There is no special difficulty in making double sided photo-elements; they differ from the normal ones only in that after the silicon has been coated, one side is ground leaving a narrow strip on one edge, on which the rear contact is deposited. The remaining unground part of the plate is thus a working surface which forms a unit with the working surface of the opposite side.

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electric energy. Electric and spectral characteristics of the instrument and the factors affecting efficiency of a converting device are discussed. Special features of solar batteries and types of their construction are listed and examples of their use in various fields of science and engineering are given. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

ZAYTSEVA, A.K.

PHASE I BOOK EXPLOITATION SOV/5506

Gliberman, Anatoliy Yakovlevich, and Ayta Konstantinova Zaytseva

Kremniyevyye solnechnyye batarei (Silicon Solar Batteries) Moscow, Gosenergoizdat, 1961. 70 p. (Series: Massovaya radiobiblioteka, vyp. 396) 35,000 copies printed.

Editorial Board: A.I. Berg, F.I. Burdeynyy, V.A. Burlyand, V.I. Vaneyev, Ye.N. Genishta, I.S. Dzhigit, A.M. Kanayeva, E.T. Krenkel', A.A. Kulikovskiy, A.D. Smirnov, F.I. Tarasov, and V.I. Shamshur; Ed.: P.A. Popov; Tech. Ed.: N.I. Borunov.

PURPOSE: This booklet is intended for advanced radio amateurs. It may also be of use to students, techniclans, and engineers.

COVERAGE: The booklet presents physical principles of silicon photoelectric devices designed for the conversion of solar energy into

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A Photoelectric Transformer From Polycrystalline Silicon

82992
S/181/60/002/008/011/045
B006/B070

SUBMITTED: April 4, 1959

IX

Card 3/3

A Photoelectric Transformer From Polycrystalline Silicon

characteristics for different exposures of the sample No. 3. The maximum of the spectral sensitivity of the transformer lay in the region of 8000 - 8100 A and could, by special treatment, be shifted on either side by 500 A. The relative spectral sensitivities of the three samples investigated are shown in Fig. 5. The following results are obtained from the experiments: (1) Polycrystalline silicon can very well be used for making photoelectric transformers to convert solar energy into electrical energy. (2) The action of the crystalline points of contact, which is harmful for the transformer property, may be eliminated by applying a grid to the surface (Photo Fig. 2). (3) The maximum power of this transformer with solar radiation is on the average 5-6 mw/cm^2 of the effective surface. (4) The cost of a battery of 1 w power, made of polycrystalline silicon, is 1/2 to 1/3 of that which is made of single crystals. (5) The temperature and exposure dependence of the parameters of polycrystalline transformers are the same as for a single crystal one.

The authors thank N. S. Lidorenko for his interest and help, and V. K. Subashiyev, candidate of physical and mathematical sciences, for discussions. There are 5 figures and 3 references: 2 Soviet and 1 US.

82992
S/181/60/002/008/011/045
B006/B070

9.4160

AUTHORS: Gliberman, A. Ya., Zaytseva, A. K., Landsman, A. P.

TITLE: A Photoelectric Transformer From Polycrystalline Silicon

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 8, pp. 1751-1754

TEXT: For the preparation of photoelectric transformers, the cost of the initial material is an important consideration. Polycrystalline silicon costs only a fourth or fifth of what a single crystal does, but the former is not used because of its low efficiency (0.6%). The possibility of its application in a photoelement was recently investigated by the authors. They used polycrystalline p-type silicon whose structure is reproduced photographically. Phosphorous was thermally diffused in this silicon from the gaseous phase and thus a p-n junction was prepared. The transformers connected in series had resistances 1 - 2 ohms, those connected in parallel 1.5 - 10 kohms. Fig. 3 shows the load characteristic of three different transformers (whose parameters and method of preparation are given), and Fig. 4 the

Card 1/3

SILICH, M.I.; SIDOROV, I.P.; MARTYNOVA, L.L.; BUKAROV, A.R.; YULUSOV, A.A.; KISIL', I.M.; Prinimali uchastiye: KLIMOVA, G.N.; YEROFEYEVA, A.D.; MALYGINA, N.M.; KHOKHLOV, A.I.; ZAYTSEVA, A.I.; YELISOVA, T.V.; BUSYGINA, A.I.

Improved technological system with a suspended catalyst for the production of alcohol by oxo synthesis method. Khim.i tekh.topl.i masel 6 no.8:19-24 Ag '61. (MIRA 14:8)

1. Gosudarstvennyy institut azotnoy promyshlennosti; LKhK; Opytno-konstruktorskoye byuro po avtomatike.
(Alcohols) (Oxo process)

ZAYTSEVA, A.I.; GOTLINSKIY, Ya.I.

Increase in the electric power output of AK-25-1 (TE-165) turbogenerators. Prom. energ. 15 no.12:13-14 D '60. (MIRA 13:12)
(Turbogenerators)

ZAYTSEVA, A.I.

Study of the effectiveness of therapeutic Brucella vaccine prepared on a medium with yeast autolysates; experimental study. Zhur. mikrobiol.epid.i immun. 32 no.1:107-110 Ja '61. (MIRA 14:6)

1. Iz Odesskogo instituta epidemiologii i mikrobiologii imeni Mechnikova.
(BRUCELLOSIS) (YEASTS)

ZAKHAROVA, Antonina Ivanovna

2005587

ZAKHAROVA, Antonina Ivanovna (Moscow Inst. [illegible])

For the Academic Title of Docent Chair: "[illegible]"

Byulleten' Ministerstva Vysshego Obrazovaniya SSSR, List No. [illegible], [illegible] March 19[illegible]
Decision of Higher Certification Commission Concerning Academic Degrees and Titles.

JPRS 512

ZAKHAROVA, A. I.

"Transmission of the Brightness Scale in the Offset Process Depending on the Methods and Conditions of Preparing Printing Forms." Sub 23 Apr 51, Moscow Polygraphic Inst

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

AVAILABLE: Library of Congress (TT207.A45 1959)

Card 4/4

GO/gmp
1-25-60

train young operators to work on their own and to acquire the necessary skill to operate modern equipment. There are numerous illustrations showing parts to be machined and schematic drawings explaining the necessary setups for a given job. Basic principles of efficient work organization and time study concepts are explained. No personalities are mentioned. There is no bibliography.

TABLE OF CONTENTS:

ZAYTSEVA, A. I.

25(2) PHASE I BOOK EXPLOITATION SOV/2803

Alfimova, Irina Alekseyevna, Polina Moiseyevna Blekher, and Antonina Ivanovna Zaytseva

Sbornik zadach po tokarnomu delu (Collection of Problems on Lathe Operation) 3rd ed., rev. and enl. Moscow, Trudrezervizdat, 1959. 194 p. 25,000 copies printed.

Scientific Ed.: V.M. Pastukhov; Ed.: F.V. Rogachev; Tech. Ed.: Yu.N. Gorokhov.

PURPOSE: This manual is intended for trade-school students and it may also be used in training lathe operators on an individual basis or in groups.

COVERAGE: This book contains problems and practical exercises for training lathe operators, especially to increase production during the Seven-Year Plan, 1959 - 1965. The training program starts with the machining of simple cylindrical surfaces and proceeds to the machining of complex shapes requiring special setups and the use of various accessories. In several instances the problems involve the preparation of drawings. This training program is designed to

Card 1/4

ALFIMOVA, Irina Alekseyevna; BLUMHER, Polina Moiseyevna; ZAYTSEVA, Antonina Ivanovna; BELINSKIY, M.Ya., redaktor; KUZ'MIN, D.G., tekhnicheskiy redaktor

[Problems in turning] Zadachnik po tokarnomu delu. Moskva, Vses. uchebno-pedagog. izd-vo Trudrezervizdat, 1956. 162 p. (MLRA 9:9)
(Turning)

KONIKOV, A.S.; PLATONOVA-CHERNYSHEVA, L.V.; KONDAKOV, Yu.P.; ZAYTSEVA, A.I.

Adaptation of the Siberian silkworm (Dendrolimus sibiricus Tschtv.) to the environmental conditions. Uch. zap. Kras. gos. ped. inst. 15:145-175 '59. (MIRA 14:12)
(Krasnoyarsk Territory--Moths)
(Fir--Diseases and pests)

ZAYTSEVA, A. I.

MURADKHANYAN, L.K., kandidat sel'skokhozyaystvennykh nauk; ZAYTSEVA, A.I. nauchnyy sotrudnik.

Machines for preparing peat-humus pots. Nauka i pered.op.v sel'khoz. 7 no.1:21-24 Ja '57. (MLRA 10:2)
(Agricultural machinery)

BEREZINA, Ye.Kh.; ZAYTSEVA, A.I.; SAKULINSKAYA, M.G.; VISHNEVSKAYA, O.P.; MEZINA, A.A.; MIKHEYEV, Ya.M.; BELOBORODOV, P.A. Prinimali uchastiye: BASHKATOVA, Z.V.; OLEYNIKOVA, Ye.I.; SIBIRYAKOVA, A.A. MIKHAYLOV, A.N., otv.red.; LIVSHITS, B.Kh., red.; VLADIMIROV, O.G., tekhn.red.

[Agroclimatic manual for Kirov Province] Agroklimaticheskii spravochnik po Kirovskoi oblasti. Leningrad, Gidrometeor.izd-vo, 1960. 190 p. (MIRA 14:3)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye gidrometeorologicheskoy sluzhby. Verkhne-Volzhskoye upravleniye.
(Kirov Province--Crops and climate)

ZAYTSEVA, A. I.

ZAITSEVA, A. I.

ZAITSEVA, A. I. "Chemical Methods of Kok-saghyz Rust Control
Doklady Vsesoiuznoi Akademii Sel'skokhoziaistvennykh Nauk
imeni V. I. Lenina, vol. 9, no. 2-3, 1944, pp. 45-47. 20 Akl

So: Sira - Si - 90 - 53, 15 December 1953

ZAYTSEVA, A. I.

"The Treatment of Certain Skin Diseases with Protective Inhibition."

Vestnik venerologii i dermatologii (Bulletin of Venerology Dermatology), No 1, January-February 1954 (Blemper), Moscow.

ZAYTSEVA, A. I.

Nasetkin, I. F., Zaytseva, A. I., and Suchkov, V. A. "Asexual syphilis," Nauch. zapiski Gor'k. in-ta dermatologii i venerologii i Kafedry kozhno-venerich. bolezney GMI im. Kireva, Issue 12, 1948, p. 189-95

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No. 3, 1949)

ZAYTSEVA, A. I.

Masetkin, I. P. and Zaytseva, A. I. "Soviet arsenoliquinol syphilis cure," Nauch. zapiski Gor'k. in-ta dermatologii i venerologii i Kafedry kozhno-venerich. bolezney GGMI im. Kirova, Issue 12, 1948, p. [illegible]

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No. 3, 1949)

ZAITSEVA, A. I.

ZAITSEVA, A. I. "Biology of Kok-saghyz Rust Fungus (Puccinia taraxaci R.)," Doklady Moskovskogo Ordena Lenina Sel'skokhoziaistvennoi Akademii imeni K. A. Timiriazeva, no. 7, 1948, pp. 136-140. 20 M857

So: Sira - Si - 90 - 53, 15 December 1953

ZAITSEVA, A. I.

ZAITSEVA, A. I. "About the Specialization of the Rust Organism of Kok-saghyz, Puccinia taraxaci kok-saghyz," Doklady Vsesoiuznoi Akademii Sel'skokhoziaistvennykh Nauk imeni V. I. Lenina, vol. 12, no. 9, 1947, pp. 31-40. 20 Akl

So: Sira - Si - 90 - 53, 15 December 1953

YEGOROV, I.A.; ZAYTSEVA, A.I., red.; LEONOVA, L.P., tekhn.red.

[Aminoplastics] Aminoplasty. Vladimir, Vladimirskoe knizhnoe izd-vo, 1959. 22 p. (MIRA 13:6)
(Plastics)

GAYUN, K.G.; ZAYTSEVA, A.G.; LEVCHENKO, T.F.

Hydrogeological characteristics of Lake Pomyaretskoye (Truskavets resort). Geol. sbor. [Lvov] no.4:343-345 '57. (MIRA 13:2)

1.Gidrogeologicheskaya kontora Minzdrava USSR, L'vov.
(Pomyretskoye, Lake (Truskavets))

RABINOVICH, R.I. Prinimali uchastiye: ALEGLAN, I.K., kand. sel'khoz. nauk; BARABANOVA, N.N.; BOSENKO, K.S.; VINNIK, V.V.; GRIGORCHUK, Ye.V.; GUMEROV, A.Kh.; DOBROCHASOV, D.F.; ZAMURAYEV, I.V.; ZAYTSEVA, A.G., kand. sel'khoz. nauk; KOL'TSOV, N.A.; LEVITIN, Kh.Z., kand. biol. nauk; LISITSKIY, B.Ya.; MATYASH, G.P.; MENTOV, A.V.; RABINOVICH,R.I.; SAL'NIKOV, V.V.; SVECHNIKOV, I.V.; SIMONOV, P.K.; SMIRNOV, V.V.; SMIRNOV, L.P.; SMIRNOVA, V.I.; STEPANOVA, V.I.; TARASOV, A.A.; FILATOVICH, V.V., kand. sel'khoz. nauk; FEDOROV, N.G., kand. tekhn. nauk; TSAPLIN, M.F.; KHROMOV, L.V.; DAVYDOVA, I., red.; PAL'MINA, N., tekhn. red.

[Sverdlovsk in Agricultural Exhibition of 1959] Sverdlovskaia sel'-khoziaistvennaia vystavka. Sverdlovsk, Sverdlovskoe knizhnoe izd-vo, 1960. 131 p. (MIRA 14:10)

1. Sverdlovsk. Sverdlovskaya oblastnaya sel'skokhozyaystvennaya vystavka, 1959.
(Sverdlovsk--Agricultural exhibitions)

ZAYTSEVA, A.G.

Remote control of cutter loaders in the mining of coal beds, made hazardous by coal and gas outbursts. Ugol.prom. no.5: 69-70 S-O '62. (MIRA 15:11)
(Coal mining machinery) (Remote control)

AKULOV, K.I.; ZAYTSEVA, A.F.; YUNDZEL', N.K.

Hygienic standardization of the permissible amounts of soluble compounds of arsenic, lead, and mercury in a natural water. Trudy 1-go MMI 5:143-147 '59. (MIRA 13:8)

1. Iz kafedry kommunal'noy gigiyeny (zav. - chleh-korrespondent chlen-korrespondent AMN SSSR prof. S.N. Cherkinskiy) 1-go Moskovskogo ordena Lenina meditsinskogo instituta im. I.M. Sechenova.
(WATER--POLLUTION) (ARSENIC--PHYSIOLOGICAL EFFECT)
(LEAD--PHYSIOLOGICAL EFFECT) (MERCURY--PHYSIOLOGICAL EFFECT)

NIKITIN, Nikolay Ignat'yevich. Prinimali uchastiye: ABRAMOVA. Ye.A., starshiy nauchnyy sotr., kand. khim. nauk; AKIM, E.L., inzh.-tekhnolog; ANTONOVSKIY, S.D., dots., kand. tekhn. nauk; VASIL'YEVA, G.G., inzh.-tekhnolog; ZAYTSEVA, A.F., starshiy nauchnyy sotr., kand. tekhn.nauk; KLENKOVA, N.I., kand. tekhn. nauk; MALEVSKAYA, S.S., kand. khim. nauk; NIKITIN, V.N.starshiy nauchnyy sotr., kand. fiz.-mat. nauk; OBOLENSKAYA, A.V., kand. tekhn. nauk, dotsent; PETROPAVLOVSKIY, G.A., starshiy nauchnyy sotr., kand. tekhn. nauk; PONOMAREV, A.N., kand. tekhn. nauk, dots.; SOLECHNIK, N.Ya., prof., doktor tekhn. nauk; TOKAREV, B.I., inzh.; TSVETAYEVA, I.P., kand. tekhn. nauk; CHOCHIYEVA, M.M., kand. tekhn. nauk; ELIASHBERG, M.G., doktor tekhn. nauk; YUR'YEV, V.I.; KARAPETYAN, G.O., red.izd-va; ZAMARAYEVA, R.A., tekhn. red.

[Wood chemistry and cellulose] Khimiia drevesiny i tselliulozy. Moskva, Izd-vo Akad.nauk SSSR, 1962. 711 p. (MIRA 15:2)

1. Chlen-korrespondent Akademii nauk SSSR (for Nikitin). 2. Zaveduyushchiy kafedroy fizicheskoy i kolloidnoy khimii Lesotekhnicheskoy akademii (for Yur'yev).

(Cellulose)

ANTONOVSKIY, S.D., kand.tekhn.nauk, dotsent; ZAYTSEVA, A.F., kand.tekhn. nauk, starshiy nauchnyy sotrudnik

Eminent scientist in the field of wood chemistry and cellulose. Bum. prom. 35 no.4:14 Ap '60. (MIRA 13:10)

1. Lesotekhnicheskaya akademiya im. S.M.Kirova (for Antonovskiy).
2. Institut vysokomolekulyarnykh soyedineniy AN SSSR (for Zaytseva).
(Nikitin, Nikolai Ignat'evich, 1890-)
(Wood--Chemistry)

MAREY, A.N., doktor med.nauk; BELYAYEVA, Ye.N., kand.khimicheskikh nauk;
ZAYTSEVA, M.F., kand.med.nauk

Improvement in the quality of distilled water intended for drinking purposes. Gig. i san. 26 no.5:93-95 My '61. (MIRA 15:4)
(WATER, DISTILLED)

ANISIMOVA, K.I.; ANTONOVSKIY, S.D.; BELOZEROVA, L.A.; ZAYTSEVA, A.F.; SHTEYNBOK, S.D.

Larch as a source of the production of a series of useful substances. Rast. res. 1 no.1:74-83 '65. (MIRA 18:6)

1. Botanicheskiy institut im. V.L. Komarova AN SSSR; Lesotekhnicheskaya akademiya im. S.M. Kirova i Institut vysokomolekulyarnykh soyedineniy AN SSSR, Leningrad.

ZAYTSEVA, A.F.; BOCHARNIKOVA, N.G.; BELOZEROVA, L.A.

Change in the chemical composition and morphological structure of cellulose fibers in the process of larch wood delignification.
Zhur.prikl.khim. 38 no.[illegible]1349-1355 Je '65. (MIRA 18:10)

VAYNSHTEYN, B.P.; KRUGLIKOV, V.Ya.; RAPOPORT, I.B.; VASIL'YEVA, Z.A.; KAGAN, L.Kh.; PLOKHINSKAYA, Ye.A.; VOLYNSKIY, A.V.; MUZOVSKIY, V.V.; KLEVTSOVA, V.P.; Prinimali uchastiye: MICHAN, A.I.; KONOVAL'CHIKOV, L.D.; AYNSHTEYN, V.G.; KVASHA, V.B.; CHELYANOVA, D.P.; ZAYTSEVA, A.F.; ANDREYEVA, T.A.

New way to synthesize oxygen compounds from carbon monoxide and hydrogen over iron-copper catalysts. Trudy VNII NP no. 9:177-196 '63. (MIRA 17:6)

SOV/80-32-5-41/43

Dulcitol Obtained From Larch Arabogalactane

There are 2 tables, and 4 references, 2 of which are Soviet, 1 English and 1 German.

ASSOCIATIONS: Institut lesa AN SSSR (Institute of Wood of the AS USSR). Leningradskiy nauchno-issledovatel'skiy institut po pererabotke nefti i polucheniyu zhidkogo sinteticheskogo topliva (Leningrad Scientific Research Institute for the Processing of Oil and the Production of Liquid Synthetic Fuel). Lesotekhnicheskaya akademiya imeni S.M. Kirova (Wood-Technical Academy imeni S.M. Kirov)

SUBMITTED: July 12, 1958

Card 2/2

5(3) SOV/80-32-3-41/43

AUTHORS: Zaytseva, A.F., Karpov, A.Z., Levin, B.Z., Antonovskiy, B.D.

TITLE: Dulcitol Obtained From Larch Arabogalactane (Dul'tsit iz arabogalaktana listvenitsy)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 3, pp 690-693 (USSR)

ABSTRACT: In larch wood there are 10-12% of water-soluble polysaccharide of arabogalactane. On hydrolysis of this polysaccharide 6 parts of galactose and 1 part of arabinose are obtained. Hydrogenation produces multi-atomic alcohols, mostly dulcitol. Gum extracted from larch wood contained 94.5% arabogalactane and 1.5% ashes. An increase of the pressure from 30 atm to 150 atm raises the dulcitol yield of the hydrogenation from 76 to 97.8%. Hydrogenation with a Ni-catalyst on silica gel, a temperature of 120°C, a pressure of 150 atm and a sugar concentration of 15% in the raw material had a yield of 98-97% in the first 36 hours.

Card 1/2

ZAYTSEVA, A.F.; FEDORISHCHEVA, L.P.; NIKITIN, N.I.

Various uses of the Dahurian larch wood. Trudy Inst. lesa 45:85-92 '58. (MIRA 11:11)
(Larch) (Wood)

ZAYTSEVA, A.F.

Information on the bleaching of sulfate cellulose obtained from the Dahurian larch wood. Trudy Inst. lesa 45:79-84 '58.
(MIRA 11:11)

(Cellulose) (Larch)

ZAYTSEVA, A.F.; FEDORISHCHEVA, I.P.; ANTONOVSKIY, S.D.; NIKITIN, N.I.

Sulfate cellulose from the Dahurian larch wood. Trudy Inst. lesa 45:70-78 '58. (MIRA 11:11)
(Larch) (Cellulose)

ZAYTSEVA, A.F.

Problems of obtaining viscous sulfate cellulose from the Dahurian larch wood. Trudy Ist. lesa 45:61-69 '58. (MIRA 11:11)
(Larch) (Cellulose)

ZAYTSEVA, A.F.; NIKITIN, N.I.

Using microsections for investigating the distribution of arabogalactan in cell walls of the Dahurian larch wood. Trudy Inst. lesa 45:50-60 '58. (MIRA 11:11)

(Larch) (Galactan)

CHOCHIYEVA, M.M.; TSVETAYEVA, I.P.; YUR'YEVA, M.K.; ZAYTSEVA, A.F.;
PETROPAVLOVSKIY, G.A.; NIKITIN, N.I.

Distribution of arabogalactan in the Dahurian larch wood. Trudy Inst. lesa 45:31-49 '58. (MIRA 11:11)
(Larch) (Galactan)

ZAYTSEVA, A.F.; FEDORISHCHEVA, I.P.; NIKITIN, N.I.

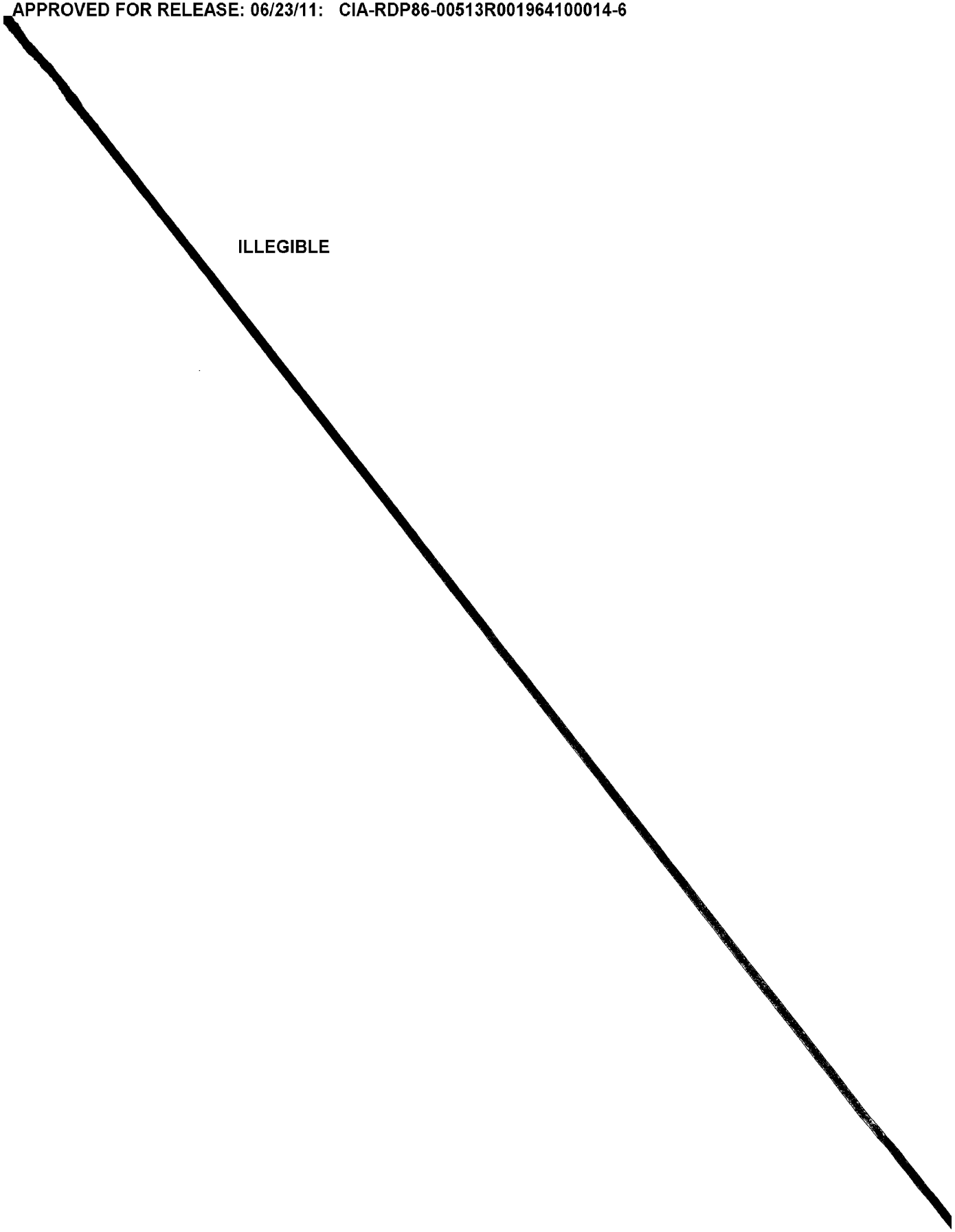
Extraction and utilization of water-soluble substances of Dahurian larch by the hydrolysis method. Gidroliz. i lesokhim. prom. 10 no.2:3-6 '57. (MLRA 10:5)

1. Institut lesa AN SSSR i Leningradskaya lesotekhnicheskaya akademiya.
(Larch) (Hydrolysis)

ZAYTSEVA A.F.

The bleaching of kraft pulp from Daurak larch. A. F. Zaitseva and I. P. Fedorishcheva. *Bumazh. Prom.* 30, No. 3, 9-11(1955); cf. *C.A.* 49, 7862d.—Kraft pulps (cooking conditions: 25% active alkali, 29.8% sulfidity, liquor-to-wood ratio 3 to 1, 3 hrs. to, and 2 hrs. at 175°) were prepd. from: *A* a composite sample of Daurak larch (I); *B* from I heartwood (preextd. 1 hr. to, and 1 hr. at, 160° with H_2O); *C* a composite sample of pine; and *D* a pine-I mixt. (1:1 by wt.). For *A-D* the H_2O extn. were 11.3, trace, 4.2, and —%; arabogalactans 10.2, trace, —, and —%; EtOH-C_6H_6 extn. 4.9, 7.4, 3.5, and —%; pulp yield 35.9, 3[illegible].2, 44.6, and 41.8%; Björkman no. 116.1, 99.9, 91.1, and 101.6; pentosans in pulp 5.9, 4.5, 8.9, and 7.0%; lignin in pulp 3.1, 3.7, 3.0, and 3.3%; Schopper-Riegler 55, 58, 58, and 5[illegible]°; breaking length in m. 8100, 6950, 8425, and 8250; double folds 2820, 1120, 920, and 1850; stretch 4.3, 4.3, 4.[illegible], and 4.5%. *A-D* were bleached as follows: Cl-H_2O chlorination (15°, 1 hr., pH 1.9-2.2, pulp d. 2.5%, 65% of Cl demand), extn. with NaOH soln. (1% NaOH on bone-dry fiber wt. X 1 hr. at 20° and pulp d. 9%) followed by washing to neutral; hypochlorite (1% Cl at pH 9.5-10.5, pulp d. 9%, 28-30° in the 1st stage and 35-40° in 2nd and (or) 3rd stage); and acidification (1%, 1 hr. at 15° and pulp d. 7%) and washing to neutral. The properties of the bleached pulps were as follows: Bj. no. after chlorination and NaOH extn. 14.0, 9.7, 9.8, and 12.8; no. of hypochlorite stages 3, 2, 3, and 3; total Cl consumption 8.4, 6.0, 5.5, and 7.0%; total bleaching time in hrs. 6, 5, 6, and 6; yield of bleached pulp 34.6, 33.8, 41.1, and 39.2%; brightness 91, 91, 91, and 90; lignin 0.10, 0.08, 0.10, and 0.11%; pentosans 4.4, 3.4, 4.9, and 5.1%; ash 0.2, 0.1, 0.5, and 0.4%; α-cellulose 93.1, 96.1, 92.7, and 94.2%; viscosity (1% cuprammonium soln. in millipoises) 191, 218, 227, and 215; S.-R. 60, 68, 58, and 60°; breaking length 7050, 6225, 8125, and 8025 m.; double folds 1701, 920, 1135, and 1250; and stretch 4.1, 4.2, 4.9, and 3.4%. In a study of the effect of cooking schedule on pulp characteristics, I (11.9% H_2O extn. removed at 160° prior to pulping) was cooked at 25.2% active alkali and 25.3% sulfidity and the pulps were bleached as above (alkali extn. at 65-70°); the times to 175° were 4.5, 4.0, 3.75, 2.5, 1.5, and 1.0 hrs.; the times at 175° 0.5, 1.0, 1.25, 2.5, 3.5, and 4.0 hrs.; pulp yield 35.7, 35.3, 34.5, 34.4, 34.8, and 34.1%; Bj. no. 127.2, 116.2, 108.2, 111.8, 118.5, and 134.3; pentosans in unbleached pulp 3.8, —, 3.3, —, 3.8, and 2.3%; lignin in unbleached pulp 3.0, —, 2.0, 2.1, 2.1, and 2.4%; Bj. no. after chlorination and alkali extn. 13.5, 12.2, 9.4, 11.3, 12.8, and 15.9; viscosity of 1% cuprammonium soln. after chlorination and alkali extn. 381, 279, 261, 210, 200, and 180 and after 2-stage hypochlorite bleaching and acidification 256, 231, 182, 163, 141, and 138. John Lake Keays

ILLEGIBLE



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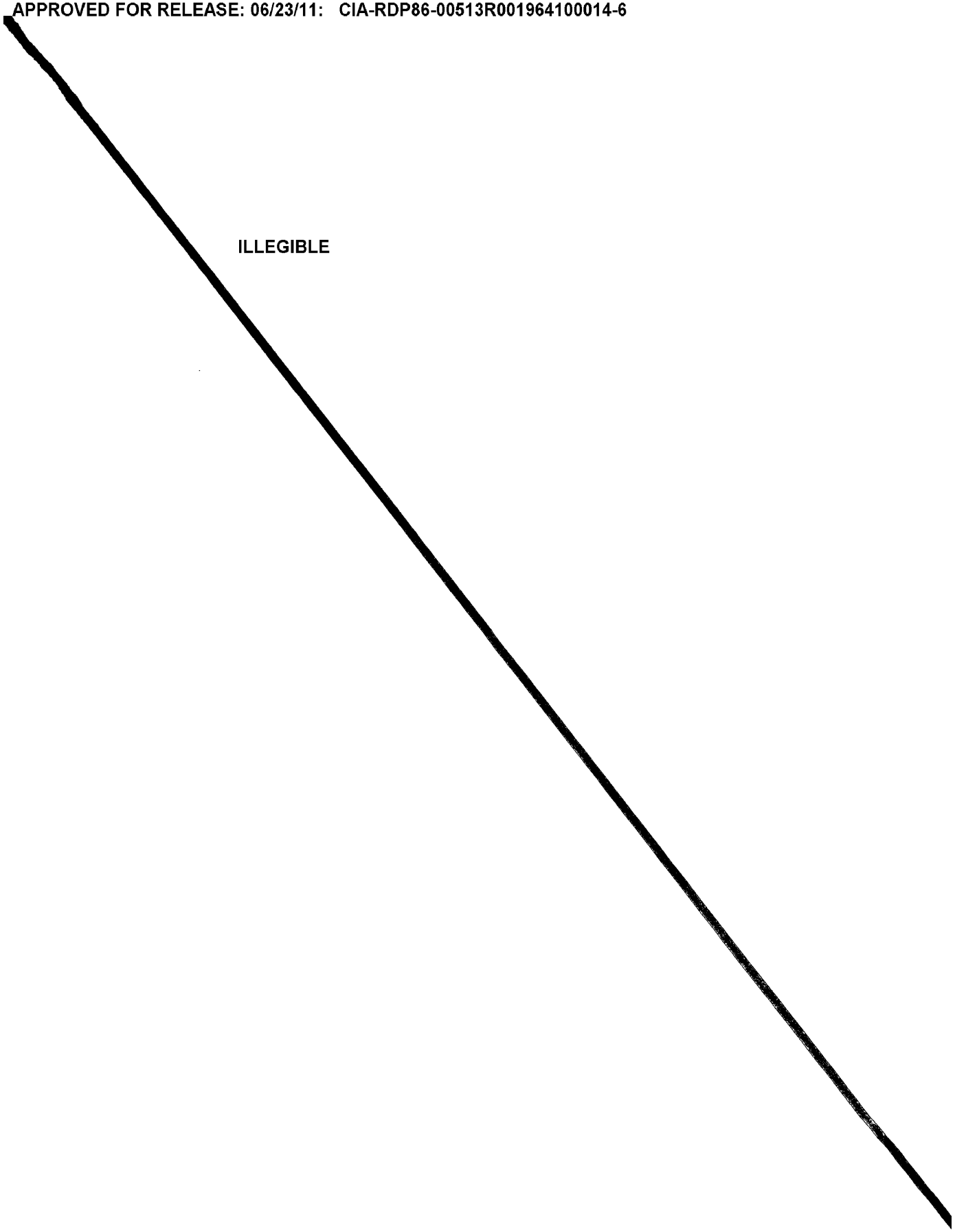

1. ZAYTSEVA, A.F.

2. USSR (600)

4. Wood

7. Chemical composition of wood in two varieties of summer oak. Zhur.prikl.khim 25 no.10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

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CA ZAYTSEVA, A.P.

The aqueous hydrolysis of oakwood. A. P. Zaitseva and N. I. Nikitin. *J. Applied Chem. U.S.S.R.* 24, 427-38 (1951)(Engl. translation)(Russian Ed. 24 392-403).—Upon prolonged pretreatment of oakwood (*Quercetum fontinale*) sawdust with boiling water at 100°, the amts. of water-sol. substances obtained were: 32.0% after 500 hrs. and 65.6% after 1000 hrs.; heartwood chips gave 40.4%, and sapwood chips 52.1% after 600 hrs. It was found that the various substances in wood dissolved at different rates during mild aq. hydrolysis. Thus pentosans and uronic acids dissolved fastest, lignin somewhat slower, and cellulose much slower. The data indicated that lignin exists in wood as a substance possessing its own properties and contg. a much higher percentage of C (64-66%) than the carbohydrates. The wood carbohydrates largely enter the aq. soln. in polymer form. Xylose was found to be the predominating sugar in the hydrolyzates. Anatomical investigation and microchem. reactions of cross sections have shown that the prolonged extn. with water involves intensive leaching of the wood constituents, not only in the surface layers of the cells but also in their internal portions. Measurements of the libriform cells have shown that its walls were 72% thinner after 1000 hrs. of aq. extn. than the walls of the libriform cells that had not been extd. with water.

T. R. Zegree

Antonina Fedorovna

ZAYTSEVA, A. F.

"Study of Chemical Composition of Oak Wood Pulp According to Forest Types,"

Zhur. Prik. Khim., 22, No. 1, 1949.

Mbr., Timber Inst., Dept. Biol. Sci.,-c1949-.

ZAYTSEVA, A.F.; KAGANOVICH, G.A.; SOKHANEVA, M.M.; SHVARTS, N.I.

Treatment of peptic ulcer of the stomach and duodenum with hexonium. Sov.med. no.3:16-20 '62. (MIRA 15:5)

1. Iz terapevticheskogo otdeleniya (zav. - prof. N.I. Shvarts) i 2-y Gorodskoy bol'nitsy (glavnyy vrach B.V. Goyev), Leningrad.
(PEPTIC ULCER) (HEXONIUM)

ZAYTSEVA, A. F.

"Modern Methods of Rendering Radioactive Waste Material Harmless."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1959.

ZAYTSEVA, A.F.

Hygienic determination of permissibly tolerable concentration of lead in water-storage reservoirs. Gigiena i Sanit. '53, No.3, 7-11. (MLRA 6:4)
(CA 47 no.20:10778 '53)

1. 1st Moscow Med. Inst.

ZAYTSEVA, A. F.

ZAYTSEVA, A. F. - "Hygienic Basis of the Maximum Permissible Concentration of Lead in the Water of Reservoirs." Sub 28 Aug 52, First Moscow Order of Lenin Medical Inst. (Dissertation for the Degree of Candidate in Medical Sciences).

SO: Vechernaya Moskva, January-December 1952

GRABAR', L.P.; ZAYTSEVA, A.D.; TUNKOV, V.P.

Revealing the relation of the magnetic properties of low-carbon electrical steel to technological factors with the help of mathematical statistics. Stal' 23 no.5:416-418 My '63.
(MIRA 16:5)

(Steel--Magnetic properties)

COVERAGE: The purpose of the present collection is to supply material for future publications on important problems in the field. The collection includes studies on ultraviolet radiation made at the Institut radiatsionnoy gigiyeny (Institute of Radiation Hygiene) under the direction of Professor N. F. Galanin, Corresponding Member, AMN SSSR (Academy of Medical Sciences USSR). Throughout the text frequent reference is made to the works of Soviet contributors to the field. There is a bibliography of Soviet and non-Soviet sources at the end of every article except the tenth.

TABLE OF CONTENTS:

ZAYTSEVA, A.D.

PHASE I BOOK EXPLOITATION SOV/4107

Leningrad. Institut radiatsionnoy gigiyeny

Ul'trafioletovaya radiatsiya i yeye gigiyenicheskoye znacheniye; sbornik trudov (Ultraviolet Radiation and Its Sanitary Importance; Collection of Transactions) Leningrad, 1959. 198 p. Errata slip inserted. 700 copies printed.

Additional Sponsoring Agency: RSFSR. Ministerstvo zdravookhraneniya.

Ed. (Title page): N. F. Galanin, Director of the Institute of Radiation Hygiene, Corresponding Member, Academy of Medical Sciences USSR, Professor; Ed. (Inside book): D. M. Tyukov.

PURPOSE: This collection of articles is intended for researchers and personnel working in public health and medicine who are interested in the hygienic and therapeutic effects of ultraviolet radiation.

Card 1/6

S/120/61/000/001/019/062
E032/E114

On the Measurement of the Light Yields of Plastic Scintillators

carried out with the γ-rays of Co^{60} using the methods described by M.M. Koton et al. (Ref.9). It is concluded from these measurements that the difference in the relative light yields of plastic scintillators irradiated by different sources is due to differences in the reabsorption coefficients of different specimens. In describing the characteristics of scintillators it is essential to state the values of the reabsorption coefficients and the dimensions of the specimens. This is particularly important for scintillators with two organic activators, owing to the considerable difference in the reabsorption coefficient as compared with the case of a single activator. There are 3 figures and 10 references: 7 Soviet and 3 non-Soviet.

ASSOCIATION: Institut vysokomolekulyarnykh soyedineniy AN SSSR
(Institute of High Molecular Compounds, AS USSR)

SUBMITTED: January 20, 1960

Card 4/4

On the Measurement of the Light Yields of Plastic Scintillators

of the light yield on concentration:

$$L = pC/(Q + C)(R + C) \qquad (4)$$

where p, Q and R depend on the nature of the solvent and solute, as well as on the nature of the ionizing radiation. The optimum concentration can be found by determining the maximum of L(C). The result is:

$$C_{opt} = \sqrt{QR} \qquad (5)$$

One of the reasons for the existence of an optimum concentration is the increase in the reabsorption with concentration. Since at constant μ reabsorption depends on ℓ, it follows that Q and R will also depend on ℓ. In the experimental verification of the above results the present authors used various polystyrene based scintillators and measured the reabsorption coefficient μ. This was done by irradiating the scintillators with β-particles from Sr^{90} and measuring the photomultiplier current as a function of the length of the scintillators. Similar measurements were

On the Measurement of the Light Yields of Plastic Scintillators

where $I_{0\beta}$ is the intensity due to an infinitely thin layer and μ is the reabsorption coefficient of the given scintillator. In the case of γ-rays it is assumed that the excitation occurs uniformly over the entire volume of the scintillator in which case the intensity reaching the photocathode is given by

$$I_\gamma = \int_0^{\ell} I_{0\gamma} e^{-\mu x} dx = (1 - e^{-\mu \ell}) \frac{I_{0\gamma}}{\mu} \quad (2)$$

The difference in the relative light yields due to γ and β rays is then given by

$$k_\beta - k_\gamma = e^{(\mu_1 - \mu_2)\ell} - 1 \quad (3)$$

It is apparent from these results that the relative intensities due to β and γ rays are not in general equal, and are functions of the difference between reabsorption coefficients and the thicknesses of the compared specimens. M. Furst and H. Kallman (Ref.8) have given the following formula for the dependence

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E032/E114

AUTHORS: Zaytseva, A.D., and Panov, Yu.N.

TITLE: On the Measurement of the Light Yields of Plastic Scintillators

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.1, pp.64-67

TEXT: Plastic scintillators are being widely used at the present time. Measurements of the relative light yields published by different authors occasionally disagree (L.L. Nagornaya and A.P. Kilimov, Ref.1). I.M. Rozman and S.F. Kilin (Ref.2) have pointed out that the relative light yields depend on the dimensions of the compared specimens. The present authors have carried out additional calculations concerned with the determination of the relative light yield due to γ and β radiations. It is assumed that in the case of β-rays all the β-energy is absorbed in an infinitely thin layer of the scintillator. If one neglects various secondary effects then the intensity of the scintillations reaching the photomultiplier cathode can be written down in the form

$$I_\beta = I_{0\beta} e^{-\mu \ell} \qquad (1)$$

SAMSONOV, G.V.; GLIKINA, M.V.; PONOMAREVA, R.B.; YURCHENKO, V.S.; GUDKIN, L.R.; KUZNETSOVA, N.P.; DMITRENKO, L.V.; ZAYTSEVA, A.D.

Transformations of polypeptides and synthesis of the peptide bond on ion exchange resins. Biokhimiia 25 no.5:964-973 S-O '60. (MIRA 14:1)

1. Institute of High Polymer Compounds, Academy of Sciences of the U.S.S.R., Leningrad.
(ION EXCHANGE) (PEPTIDES)

ZAYTSEVA, Anastasiya Dmitriyevna

Preparation of Pathological Amputational Stump for an Artificial Limb

Dissertation for candidate of a Medical Science degree. Chair of General Surgery (head, Asst. Prof. I.M. Rubinovich) Saratov Medical Institute, 1952

ZAYTSEVA, A.D.; PANOV, Yu.N.

Measurements of the light sums of plastic scintillators. Prib. i tekh. eksp. 6 no.1:64-67 Ja-F '61. (MIRA 14:9)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Scintillation counters)

was carried out with 800 kg ingots, application of the above heating method for larger ingots should be additionally checked. During 9 months of operating according to the new practice crop ends were decreased by 2.3% and defects due to microstructure to 0.21% instead of the previous figure of 0.50%. There are 5 figures and 2 tables.

ASSOCIATION: Serp i Molot Works (Zavod "Serp i Molot")

AVAILABLE: Library of Congress.

Card 3/3

Raising the Yield of Metal by Using Hot Ingot Tops.

1 - 6 is given. The structure of the ingot with heating top with ferro-silicon is shown in Fig.1, methods of sampling ingots in Fig.2, comparison of macrostructure of longitudinal templets of ingots (Al2 steel) with heating sinkhead with lunkerite and mixture 5 in Fig.3. Gas content in various parts of an ingot cast with intensive heating of the sinkhead and chemical composition of samples from longitudinal templets of ingots heated with lunkerite and mixture 15 are given in Tables 1 and 2, respectively. As the next step in saving metal, the shape of sinkhead was modified (Fig.4) and the insulation of hot tops improved (Fig.5). It is concluded that the use of intensive heating of hot tops of large ingots and large shaped castings by combustion of 75% ferro-silicon in a stream of oxygen improves the quality of ingots and castings and gives an economy of metal from 4 to 15%. The method of heating hot tops of ingots not larger than 1 ton using mixture No.5, (70% of 75% ferro-silicon, 20% of sodium nitrate, 10% chamotte powder) for ingots stripped with clamps and mixture No.6 (70% of 75% ferro-silicon, 20% sodium nitrate and 10% silico-calcium) for ingots and medium shaped casting for which clamps are not used, also improves the quality of ingots and castings and gives an economy of metal from

 2.5% for ingots to 15% for castings. Considering that the work

ZAYTSEVA, A.D.

133-7-5/28

AUTHOR: Zhetvin, N.P., Candidate of Technical Sciences, Lebed'kov, A.A., Tunkov, V.P. and Zaytseva, A.D., Engineers.

TITLE: Raising the Yield of Metal by Using Hot Ingot Tops (Povysheniye vykhoda godnogo putem obogreva pribyl'noy chasti slitka)

PERIODICAL: Stal', 1957, no.7, pp. 587 - 592 (USSR)

ABSTRACT: Investigations carried out on the "Serp i Molot" Works on heating hot top of ingots of killed steel and riser for large steel castings are described. The following participated in the work: Engineers C.V. Svirdov, V.M. Maksimov, P.I. Mel'nikov, A.V. Rabichev, V.I. Tvirov, I.I. Fomin, A.I. Filatova and laboratory assistants I.P. Zabotkin, I.D. Ob'edkov and others. The usual works' practice was to team 75-ton open hearth heats into 84 to 90 moulds (0.8 ton). Bottom pouring of ingots placed on 12 ingot stools with filling sinkheads with bunkerite was used. Cropped head for carbon steel was 13 - 13.5% and for some low alloy steels 15-16%. Ingot dimensions: top 330 x 330 mm, bottom 275 x 275 mm, height 1 085 mm. The use of the following substances for heating hot tops was tested: 75% ferro-silicon (crushed to -2 mm) 5 - 6 kg per ingot with a supply of oxygen (2 - 3 min) and 6 mixtures of ferro-silicon, aluminium, sodium nitrate, chamotte powder and silico-calcium in various proportions and combinations. The composition of mixtures numbered

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ZAYTSEVA, A.D.

234

AUTHOR: Fomin, I.I., Zaitseva, A.D. and Konshin, P.P., Engineers at the Serp i Molot Works.

TITLE: Improving the production technology of free-cutting steel (Uluchshenie tekhnologii proizvodstva avtomatnoy stali.)

PERIODICAL: "Metallurg" (Metallurgist), 1957, No. 1, pp. 15 - 16, (U.S.S.R.)

ABSTRACT: Existing practice at the Serp i Molot Works for the production of type A12 free-cutting steel (0.08 - 0.16% C, 0.60 - 0.90% Mn, 0.15 - 0.35% Si, 0.08 - 0.20% S and 0.08 - 0.15% P) was found to be capable of improvement. Measures required are:
1) strict control of filling rate for all moulds to give filling times over 3 minutes;
2) introduction of sulphur into the ladle in a metal container;
3) maintenance of the Mn/S ratio at a value not less than 7.5;
4) exclusion of heats with low carbon contents on melting;
5) fullest possible deoxidation, preferably by preliminary deoxidation of the bath with blast furnace ferrosilicon (7-10 kg/ton of metallic charge, depending on quality of silicon-manganese introduced. 1 table.

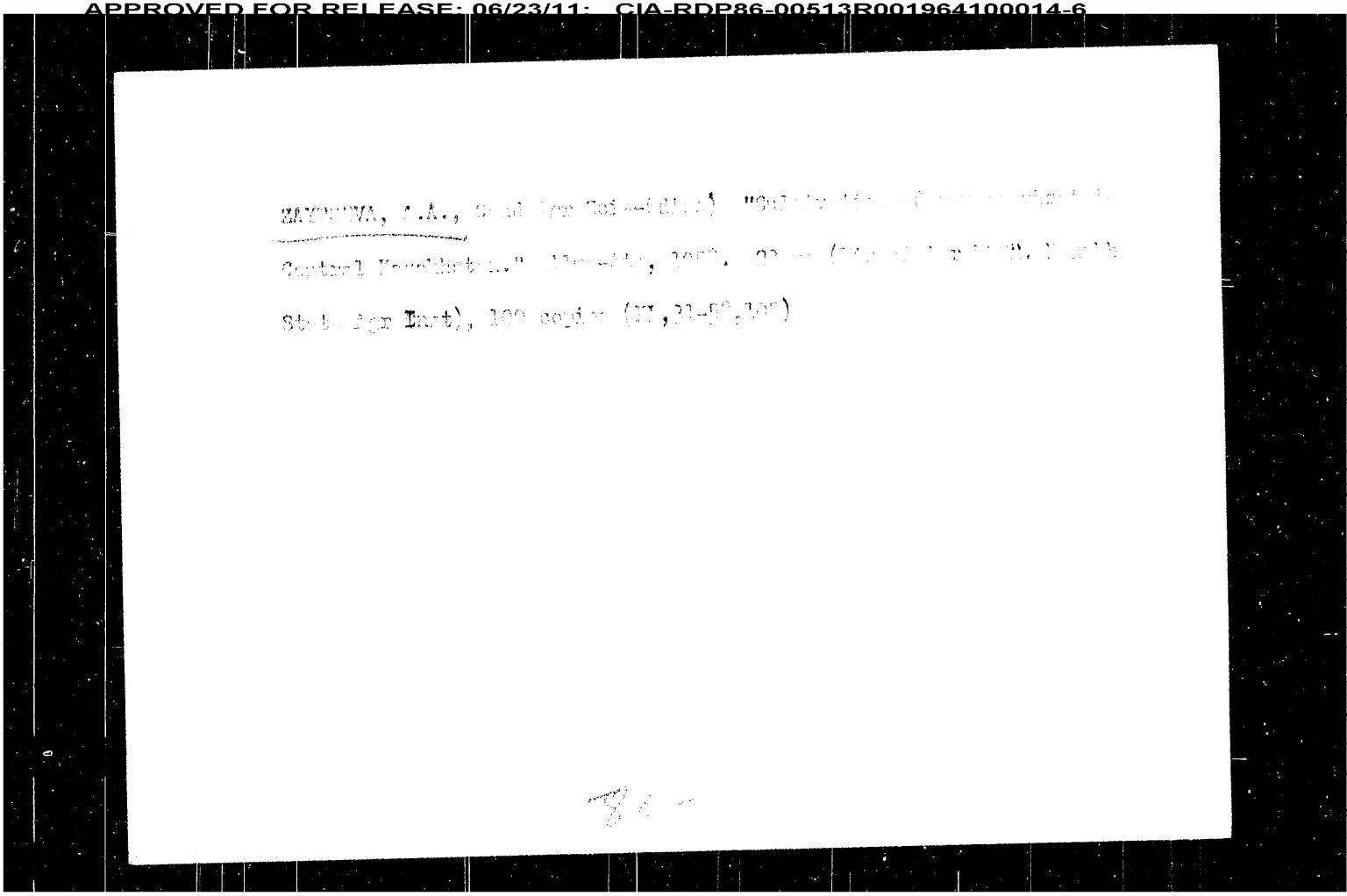
ANUFRIYEVA, Ye.V.; ZAYTSEVA, A.D.

Vitrification of polymers and phosphorescence. Izv.AN SSSR 24 no.6:755-758 Je '60. (MIRA 13:7)

1. Institut vysokomolekulyarnykh soyedineniy Akademii nauk SSSR.
(Phosphorescence) (Polymers)

KALAUS, A.Ye.; RABINERZON, M.A.; ZAKHARCHENKO, P.I.; BASHKATOV, T.V.; POLYAKOV, V.V.; ZAYTSEVA, A.B.

Oil-masterbatched rubbers and their technical characteristics. Khim. prom. no.6:333-342 S '57. (MIRA 11:1)
(Rubber, Synthetic)



ZAYTSEVA, A.A. (Moskva)

Characteristics of morphine accumulation in the opium poppy (Papaver somniferum L.) and role of the lactiferous system. Bot.zhur. 44 no.11:1567-1577 N '59. (MIRA 13:4)
(Poppy) (Morphine)

BARAYEV, A.I.; ZAYTSEVA, A.A., kand.sel'skokhozyaystvennykh nauk

System of tillage implements and sowing machines for the Virgin Territory. Zemledelie 24 no.3:22-30 Mr '62. (MIRA 15:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zernovogo khozyzystva. 2. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni Lenina (for Barayev).
(Virgin Territory--Agricultural machinery)